

# THE MINERAL INDUSTRY OF NIGERIA

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According to data compiled by the U.S. Energy Information Administration (2004b), the Federal Republic of Nigeria ranked 11th in the world in the production of crude petroleum and condensate by volume. Nigeria, which was a member of the Organization of the Petroleum Exporting Countries (OPEC), remained Africa's leading oil producer in 2003 with about 3% of world production compared with Algeria and Libya (2% each), Angola (1%), and Egypt (about 1%). Nigeria was the fifth leading source of U.S. crude oil imports (about 9%) in 2003 after Saudi Arabia (18%), Mexico and Canada (16% each), and Venezuela (12%) (U.S. Energy Information Administration, 2004a, b; BP p.l.c., 2004§<sup>1</sup>).

With about 134 million people, Nigeria was the most populous nation in Africa. The International Monetary Fund (2004§) estimated that the nation's real gross domestic product (GDP) had increased by 10.7% in 2003 compared with a revised 1.5% increase in 2002. The GDP based on purchasing power parity was \$126 billion, and the GDP per capita based on purchasing power parity was \$908.<sup>2</sup> The oil sector was the cornerstone of the Nigerian economy and the primary component of the industrial sector, which accounted for 38% of the GDP. In 2003, total oil revenues accounted for 81% of Government revenues (the Petroleum Profit Tax alone provided 61% of Government revenues) compared with 71% in 2002 and 77% in 2001 (Central Bank of Nigeria, 2004, p. 56; Office of Public Communications, 2004§).

## Government Policies and Programs

The Federal Government held all mineral rights under the Mining and Minerals Decree No. 34 of 1999. As part of the Government's new 7-year mineral resource development program, the Ministry of Solid Minerals Development authorized a national solid mineral survey in 2003 and requested bids for an airborne geophysical survey. The Government stopped issuing exclusive prospecting licenses for gold, lead, tantalum, and zinc exploration, and the Ministry of Solid Minerals Development expected to revalidate existing leases and licenses. The Government also reportedly banned imports of barite to help promote the development of local production (Africa Energy Intelligence, 2003b; Guardian, 2003c§).

The Government held interest in almost 600 companies. The costs associated with maintaining these companies (about \$3 billion per year) and the international reputation for corruption, inefficiency, and political patronage that many of the public enterprises in Nigeria have acquired had convinced

the Government to attempt to commercialize or privatize many of the companies; however, the privatization program has had limited success. Domestic and international companies and consortia that acquired majority interest in the privatized companies have developed a record of financial difficulties and technical problems after being selected to take over the former state-owned enterprises (Bureau of Public Enterprises, 2003§; Gabriel, 2004§).

## Structure of the Mineral Industry

A majority of the small companies that mined or processed metals and industrial minerals were privately or Federal Government owned. With the exception of the cement industry, the Federal Government wholly owned or owned a majority interest in most of the large mineral resource companies.

In 2003, the Bureau of Public Enterprises (BPE), which managed the Federal Government's privatization program, appeared to have made some progress in its attempt to divest the Government of Ajaokuta Steel Co. Ltd. (ASC), Aluminum Smelter Co. of Nigeria Ltd. (Alscn), Delta Steel Co. Ltd., Federal Superphosphate Fertilizer Co. Ltd., Jos Steel Rolling Mill Co. Ltd., Katsina Steel Rolling Mill Co. Ltd., National Fertilizer Co. of Nigeria Ltd. (NAFCON), Nigerian Coal Corp., Nigerian Iron Ore Mining Co. Ltd., several subsidiary companies of the Nigerian Mining Corp., and Oshogbo Steel Rolling Co. Ltd. Nigeria Uranium Co. was to be liquidated. Employees of Nigerian Coal anticipated that they would receive their nearly 2 years' worth of unpaid salary from the Government prior to any privatization of their company (Guardian, 2003b§).

## Trade

In 2003, of the official crude oil exports of 673.1 million barrels (Mbbbl), about 255.8 Mbbbl was exported to the United States; about 87 Mbbbl, to India; 56.5 Mbbbl, to Spain; 43.7 Mbbbl, to France; 35.7 Mbbbl, to Brazil; and about 33 Mbbbl, to countries in West Africa. In 2003, crude oil exports were valued at \$19.9 billion and accounted for 89.2% of the value of total Nigerian exports, which were valued at \$22.3 billion. Natural gas accounted for 7% of the value of total Nigerian exports in 2003 (Central Bank of Nigeria, 2004, p. 154, 159).

Total imports in 2003 were valued at \$13.7 billion. Oil sector imports were valued at \$2.3 billion (Central Bank of Nigeria, 2004, p. 154).

## Commodity Review

### Metals

**Aluminum.**—Alcoa Inc., the Government, and Ferrostaal AG continued negotiations to determine their respective equity

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

<sup>2</sup>Where necessary, values have been converted from Nigerian naira (₦) to U.S. dollars (US\$) at the average rates of ₦133.07=US\$1.00 for 2003 and ₦120.47=US\$1.00 for 2002.

interest in Alcon. The Government claimed that because of its investment in the improvement of local infrastructure, its 70% ownership interest in Alcon should be increased to 91.4%, that Ferrostaal's 20% interest should decline to 6.77%, and that Alcoa's 10% interest should drop to 1.83%; Alcoa and Ferrostaal disagreed. In the ongoing attempt to privatize Alcon, an audit discovered that the company was insolvent and technically bankrupt and that, under existing contracts, Alcoa would retain the marketing rights to Alcon's first 10 years of aluminum production, regardless of who owned Alcon. In response, the Government postponed the privatization for the second time in 2 years (Metal Bulletin, 2003; Guardian, 2003a§).

**Iron and Steel.**—In 2003, the consortium managed by Solgas Energy Ltd. of the United States started work on its 10-year contract to complete the ASC facility and to start producing steel. Solgas expected that the ASC rolling mill would begin to process imported steel billet in 2004 and that the ASC blast furnace operation would be producing steel by 2005. Voest-Alpine Industrienlagenbau GmbH & Co. of Austria (VAIS) and Osaka Steel Nigeria Ltd. continued to rehabilitate Delta Steel's rolling mill for the BPE after the private sector expressed limited interest in acquiring Delta Steel in 2002. In July 2003, VAIS indicated that problems with power availability delayed the completion of work on the Delta Steel project. At yearend, the mill was still idle. In 2003, several companies filed with the BPE as interested core investors in the Jos, the Katsina, and the Oshogbo steel-rolling mills. Negotiations for the privatization of the mills were expected to begin in 2004 (Jones, 2003).

### *Industrial Minerals*

**Nitrogen and Phosphate Rock.**—In April, NAFCON was sold for \$75 million to the joint venture of Sino Africa Petrochemical Co. Ltd. (a Chinese-Nigerian consortium) (70% equity interest) and Foskor Ltd. of South Africa (30%). The joint-venture partners delayed the initial required payment for NAFCON and subsequently requested an extension of time for payment of the balance. At yearend 2003, the transaction had not been completed. The BPE expected to divest its interest in Federal Superphosphate Fertilizer by December 2005 (Anyikwa, 2003§; Akwaya and Basse, 2004§).

### *Mineral Fuels and Related Materials*

**Bitumen.**—Despite the President's participation in a March 2003 groundbreaking ceremony for development of bitumen resources in Ondo State, visible progress was minimal. In June, the Federal Government threatened to withdraw the licenses it had issued because the companies had failed to mobilize equipment and personnel to the license areas. The two licensed companies, Bitumen Exploration and Exploitation Co. Ltd. (a consortia of local companies and the Ondo State government) and NISSANDS Ltd. of Canada, spent most of the year developing production plans and seeking investors willing to provide funds for operations in Nigeria and technical partners able to develop the bitumen resource (Bello, 2003a§, b§).

**Natural Gas.**—The Government continued to push to eliminate the burning off of natural gas that is produced in

association with crude oil. Although several different years were named as targets for ending the practice of flaring natural gas, sometime in 2008 was the year most frequently mentioned. Several gas gathering and utilization projects were operational or planned.

Completion of Nigeria Liquefied Natural Gas Ltd.'s (NLNG) natural gas liquefaction train 4 at Finima on Bonny Island was scheduled for 2005. Completion of train 5 was expected in 2005 or 2006, which would raise NLNG's facility's capacity to about 17 million metric tons per year (Mt/yr) of liquefied natural gas (LNG) and 2.2 Mt/yr of liquefied petroleum gas. Discussions continued in 2003 about the possibility of building a 4-Mt/yr-capacity LNG train 6 (Petroleum Argus, 2003, p. 6; Nigeria Liquefied Natural Gas Ltd., 2004).

The joint venture of ChevronTexaco Corp., ConocoPhillips Co., ENI International N.A.N.V. S.a.r.l., and Nigeria National Petroleum Co. (NNPC) agreed to fund initial engineering work on the proposed Brass River LNG facility. The joint venture also formed Brass River LNG Ltd. to manage the proposed two-train 10-Mt/yr-capacity project that was to be built near Nigerian Agip Oil Co.'s Brass River oil terminal. Initial production was expected in 2008. NNPC, Shell Nigeria Exploration and Production Co., and Statoil ASA of Norway continued to evaluate the possibility of building a floating LNG plant to develop the offshore Nnwa-Dora gas prospect (ChevronTexaco Corp., 2003).

A disagreement between ChevronTexaco (75% interest) and NNPC (25%) about the costs of the Escravos gas-to-liquids project erupted in 2003. The estimated cost of the project was increased to between \$1.2 billion and \$1.3 billion from the original estimate of \$900 million after engineering and feasibility studies were completed in 2003. The completion date for the 33,000-barrel-per-day plant of ultra-low-sulfur diesel fuel and naphtha was pushed back to 2007 from 2005 (Chevron Nigeria Ltd., 2004; Oduniyi, 2003§).

In 2003, West African Gas Pipeline Co. Ltd. (WAPCo) was incorporated by joint-venture partners ChevronTexaco West African Gas Pipeline Ltd. (36.7% interest), NNPC (25%), Shell Overseas Holdings Ltd. (18%), Takoradi Power Co Ltd. (16.3%), Société Beninoise de Gaz S.A. (2%), and Société Togolaise de Gaz S.A. (2%). WAPCo will build, own, and operate the \$590 million 678-kilometer West African Gas Pipeline and deliver Nigerian natural gas to Benin, Ghana, and Togo. In 2003, WAPCo started an environmental impact assessment study for the pipeline. The pipeline was expected to be operational in 2006 and was expected to transport about 13.1 million cubic meters per day of natural gas at maximum capacity (West African Pipeline Co. Ltd., 2004).

**Petroleum.**—Despite continued civil violence directed at the international oil company facilities and inter-tribal conflicts that adversely impacted production operations, Nigerian oil production rebounded in 2003 in response to increased international oil prices and an increased production quota authorized by OPEC. ChevronTexaco reported that it lost about \$500 million because of civil disturbances in Nigeria between 2002 and 2003. The Shell Petroleum Development Co. of Nigeria Ltd. (SPDC) reported that civil disturbances declined in 2003 to 160 incidents, which was down from 282 incidents in 2002, but production of about 45 Mbbbl was

deferred because of the disturbances. SPDC also reported 88 crude oil thefts that resulted in the loss of an estimated 9 Mbbbl of crude oil. Equipment and facility damage associated with the stolen oil events accounted for deferred production of an additional 13.8 Mbbbl of oil. To help the Nigerian Navy patrol coastal waterways and to combat the transport of stolen crude oil, the U.S. Security Assistance Program arranged the transfer of decommissioned 55-meter (180-foot) *Balsam*-class seagoing buoy tenders to Nigeria. Nigerian Naval Ship (NNS) *Kyanwa* [the former U.S. Coast Guard Cutter (USCGC) *Sedge*] was acquired in 2002; the former USCGC *Cowslip*, the former USCGC *Firebush*, and the former USCGC *Sassafras* (recommissioned as the NNS *Obula*) were transferred in 2003 (African Energy Intelligence, 2003a; Organization of the Petroleum Exporting Countries, 2004, p. xiii; Shell Petroleum Development Co. of Nigeria Ltd., 2004, p. 2-3; Brunette, 2003§; Okafor, 2003§; Salau, 2005§).

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## Major Sources of Information

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TABLE 1  
NIGERIA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	1999	2000	2001	2002	2003
METALS					
Aluminum	16,000	--	--	--	--
Columbium (niobium) and tantalum concentrates:					
Gross weight	300	469	610	500	700
Columbium (niobium) content	125 <sup>r</sup>	200 <sup>r</sup>	250 <sup>r</sup>	210 <sup>r</sup>	300
Gold	40	52 <sup>4</sup>	37 <sup>4</sup>	40	50
Iron and steel, iron ore, gross weight	--	25 <sup>4</sup>	25 <sup>4</sup>	25	--
Lead:					
Lead-zinc ore	150	165 <sup>4</sup>	247 <sup>4</sup>	250	250
Metal, refined	5,000	5,000	5,000	5,000	5,000
Tin:					
Mine output, cassiterite concentrate:					
Gross weight	4,184 <sup>4</sup>	3,502 <sup>4</sup>	3,677 <sup>4</sup>	3,600	4,800
Sn content	3,300	2,760 <sup>4</sup>	2,870 <sup>4</sup>	2,800	3,700
Metal, smelter	50	25	25	25	25
INDUSTRIAL MINERALS					
Barite <sup>5</sup>	5,000	5,000	5,000	5,000	5,000
Cement, hydraulic	2,500	2,500	2,400	2,100	2,100
Clays:					
Kaolin	110,000	165,765 <sup>4</sup>	209,478 <sup>4</sup>	200,000	200,000
Unspecified	50,000	50,412 <sup>4</sup>	60,474 <sup>4</sup>	60,000	60,000
Feldspar	500	1,449 <sup>4</sup>	1,811 <sup>4</sup>	1,800	1,800
Gypsum	500,000	530,262 <sup>4</sup>	609,800 <sup>4</sup>	300,000 <sup>r</sup>	100,000
Nitrogen:					
N content of ammonia	148	--	--	--	--
N content of urea	100	--	--	--	--
Stone:					
Granite	2,000	2,016 <sup>4</sup>	2,419 <sup>4</sup>	2,500	2,500
Limestone	1,998 <sup>4</sup>	3,326 <sup>4</sup>	3,392 <sup>4</sup>	3,400	2,200
Marble	62 <sup>4</sup>	117 <sup>4</sup>	129 <sup>4</sup>	130	70
Shale	140	142 <sup>4</sup>	163 <sup>4</sup>	130	130
Topaz	25	25 <sup>4</sup>	1 <sup>4</sup>	10	10
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	16,213 <sup>4</sup>	11,536 <sup>4</sup>	11,495 <sup>4</sup>	11,000	6,000
Natural gas:					
Gross	36,156 <sup>4</sup>	47,537 <sup>4</sup>	57,530 <sup>4</sup>	70,000	70,000
Dry	12,667 <sup>4</sup>	21,945 <sup>4</sup>	39,640 <sup>4</sup>	45,000	50,000
Petroleum:					
Crude	777,000	783,000	823,000	773,000	798,000
Refinery products:					
Liquefied petroleum gases	100	170	1,000	2,300	2,000
Gasoline	10,000	8,000	24,400	22,400	20,000
Kerosene	6,000	5,100	12,500	11,800	12,000
Distillate fuel oil	9,000	7,600	18,900	18,800	19,000
Residual fuel oil	12,000	10,400	21,500	17,200	17,000
Unspecified	5,900	1,200	700	4,000	4,000
Total	43,000	32,500	79,000	76,500	74,000

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Includes data available through August 2004.

<sup>2</sup>Estimated data were rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>In addition to the commodities listed, amethyst, aquamarine, bitumen, diamond, emerald, garnet, granite, lime, phosphate rock, ruby, rolled-steel products, sapphire, soda ash, talc, tourmaline, tungsten, zinc, and zircon are mined, and a variety of crude construction materials (stone and sand and gravel) are produced, but information is inadequate to estimate output.

<sup>4</sup>Reported figure.

<sup>5</sup>Considerably more barite is produced (about 250,000 metric tons per year) but is considered to be commercially unusable.